# Leibniz on Necessary and Contingent Truths

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The distinction between necessary and contingent truths has so much important role in the explication of Leibniz's philosophy of logic, metaphysics, and philosophy of science that the distinction spreads throughout most of his philosophical writings. My aim in this paper is to try to provide a clear and detailed account of some of the aspects of Leibniz's distinction between necessary and contingent truths. This paper is divided into four parts. In the first part, an analysis of Leibniz's general notion of "truth" ("the Principle of the Predicate-in-Notion") is given. This will be followed by his distinction between necessary truths and contingent truths, which he also terms as "truths of reason" and "truths of fact" respectively. Thirdly, the implication of this distinction in Leibniz's theory of human freedom will be addressed. I will end my discussion with an answer to the following questions: The distinction goes traditionally under Leibniz' name; but is it his own invention, or has he merely picked it up from one of his predecessors? And secondly, how far this distinction has an impact (if any) on the philosophies of his contemporaries, especially on Wolff, Hume and Kant?

## I

Since Leibniz's doctrine of necessary and contingent truths is closely related to his chief doctrine of truth which is usually termed as "the Principle of the Predicate-in-Notion", we will first discuss what Leibniz means by this principle. Leibniz formulates the "the Predicate-in-Notion Principle" in several slightly different ways. In *A Calculus of Consequences* Leibniz writes: "In every proposition, the predicate is said to be in the subject, that is, the

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notion of the predicate is contained in the notion of the subject"
(Ariew and Garber 11). In *On Primary Truths* he says:

> Therefore, the predicate or consequent is always in the subject
> or antecedent, and the nature of truth in general or the
> connection between the terms of a statement consists in this
> very thing, as Aristotle also observed. The connection and
> inclusion of the predicate in the subject is explicit in identities,
> but in all other propositions it is implicit and must be shown
> through the analysis of notions; a priori demonstration rests on
> this. (*Ibid*, 13)

In §8 of *Discourse on Metaphysics* Leibniz writes:

> Now it is evident that all true predication has some basis in the
> nature of things and that, when a proposition is not an identity,
> that is when the predicate is not explicitly contained in the
> subject, it must be contained in it virtually. That is what the
> philosophers call *in-esse*, when they say that the predicate is in
> the subject. Thus the subject term must always contain the
> predicate term, so that one who understands perfectly the
> notion of the subject would also know that the predicate
> belongs to it. (*Ibid*, 41)

And finally, *In a Letter to Arnauld (July 14, 1686)* Leibniz
writes: "Always in every true affirmative proposition, whether
necessary or contingent, universal or particular, the notion of the
predicate in some way included in that of the subject. *Predicatum
incest subjecto*; otherwise I do not know what truth is" (Loemker
337).

The gist of the above passages is, roughly, that, for Leibniz,
there is a canonical form for propositions, that of subject and
predicate, i.e., that every proposition is equivalent to a complex of
propositions in subject-predicate form. And that in every true
affirmative proposition, whether it be necessary or contingent,
universal or singular, the notion of the predicate is contained in that
of the subject. Leibniz mentions that this seems to him to be self-
evident when he considers what is meant by a proposition being
true.

Leibniz applies the Principle of the Predicate-in-Notion to his two great logical principles or "principles of reasoning": The *Principle of contradiction or of identity* and the *Principle of sufficient reason*. In §31 of his *Monadology* Leibniz formulates the *Principle of contradiction* thus: "...the principle of contradiction by virtue of which we judge to be false that which involves a contradiction, and true that which is opposed or contradictory to the false" (Ariew and Garber 216).

The principle of identity is most simply stated as "A is A" ("everything is what it is"). This principle can be deduced from the principle of contradiction. If a proposition cannot be both true and false at the same time, then A is A and cannot be not-A. This is so because if A is not-A then the proposition "something is A" is both true and false which is impossible.

Leibniz more or less treats the principle of contradiction as synonymous with the principle of identity, so it can be no surprise that he believed that every "identical proposition" is necessarily true. An "identical proposition" is one of the form "A is A" (a man is a man) or "AB is A" (a tall man is tall).

Leibniz states the *Principle of sufficient reason* as:

> …the principle of sufficient reason, by virtue of which we consider that no fact can be real or existing and no proposition can be true unless there is sufficient reason, why it should be thus and not otherwise, even though in most cases these reasons cannot be known to us (*Ibid.*)

Leibniz used this principle in many different arguments, for example, his proofs of the non-absolute nature of space and time. However, its most important application is in his proof of the existence of God. God must exist, for otherwise there would be no sufficient reason why this world should exist rather than some other.

Leibniz believed that this principle could be derived from his definition of truth. In his 1686 paper *Primary Truths*, after describing his containment approach to truth, he says: 'There is nothing without a reason' or 'There is no effect without a cause'.

For otherwise there would be a truth which could not be proved a priori, i.e. which is not analysed into identities; and this is contrary to the nature of truth, which is always either expressly or implicitly identical" (Ariew and Garber 14).

It is interesting to note the conflation here of reason as in explanation, and cause. Like other 17th century philosophers, Leibniz has a tendency to merge reasons and causes. As Benson Mates points out, the principle of sufficient reason can be seen either as a corollary of Leibniz's definition of truth, or as a statement of the principle of universal causation (162).

## II

In §33 of the Monadology Leibniz makes a clear distinction between necessary truths and contingent truths.

> There are two kinds of truths, those of *reasoning* and those of *fact*. The truths of reason are necessary and their opposite is impossible; the truths of fact are contingent and their opposite is possible. When a truth is necessary, its reason can be found by analysis, resolving it into simpler ideas and simpler truths until we reach the primitives. (Ariew and Garber 217)

We will first deal with the truths of reason. For Leibniz, these truths are necessary propositions, in the sense that they are either themselves self-evident propositions or reducible thereto. If we really know what the propositions mean, we see that their contradictories cannot conceivably be true. All truths of reason are necessarily true, and their truth rests on the *principle of contradiction*. One cannot deny a truth of reason without being involved in contradiction.

> Necessary truths are those that can be demonstrated through an analysis of terms, so that in the end they become identities, just as in Algebra an equation expressing an identity ultimately results from the substitution of values [for variables]. That is, necessary truths depend upon the principle of contradiction. (*Ibid,* 28)

As examples of necessary truths Leibniz usually mentions, first of all, so-called identities, namely propositions of the forms "A is A", "AB is A", "ABC is AC", and so forth. Then he mentions mathematical truths, and also a few "disparates" like "Heat is not Colour", "Man is not Animal", and "Triangularity is not Trilaterality".

For Leibniz, the truths of reason or necessary truths are finitely analytic, and the principle of contradiction says that all finitely analytic propositions are true. A finitely analytic proposition is one that is either explicitly analytical ("An equilateral rectangle is a rectangle") or else is one that can be reduced to an explicitly identical proposition by a *finite* number of steps of reasoning using definitions alone. In other words, a necessary truth is an express or implicit "identity": i.e., a proposition which is either expressly or implicitly of the form "A is A", or "AB is A" or may be reduced to one of these forms by the substitution of definitions. Leibniz makes a distinction between *real* and *nominal* definitions, and maintains that real definitions are fundamental. Against Hobbes who claims that "truths are arbitrary, since they depend on nominal definitions" Leibniz maintains that besides nominal definitions which "contains only marks of a thing to be distinguished from other things", there are also real definitions which show clearly that "a thing is possible" (*Ibid*., 26), and that the propositions derived from real definitions are true.

A difficulty seems to arise in Leibniz's philosophy when he asserts that all necessary truths are express or implicit "identities". For, if an "identity" is a proposition expressly or implicitly of the form "All A is A", or "AB is A", and all necessary truths are identities, the implication would appear to be that all necessary truths are affirmative. Certainly, if "All bodies are extended" is a necessary truth, "No bodies are unextended" would appear equally to be a necessary truth. But the latter proposition reduces to "No A is not-A", not "All A is A". And in "No A is not-A" the relation between the subject and the predicate is clearly not one of identity.

It is true that Leibniz, in general, is excessively preoccupied with the affirmative form of propositions, which is evident in many

of his writings. We may cite the following two passages as representatives:

> Every true affirmative proposition, either necessary or contingent, has some connection between subject and predicate. In identities this connection is self-evident; in other propositions it must appear through the analysis of terms. (*Ibid,* 28)

> Always in every true affirmative proposition, whether necessary or contingent, universal or particular, the notion of the predicate in some way included in that of the subject. *Predicatum incest subjecto*; otherwise I do not know what truth is. (Loemker 337)

Besides, as Louis Couturat, in his *La Logique de Leibniz*, has shown that Leibniz's effort to develop logical calculi are crippled by a failure to cope adequately with negative propositions – a failure which may perhaps in turn be traced to his "marked predilection" for the "intensional" rather than "extensional" point of view in dealing with the systematization of logic (Wilson 91).

However, it is to be mentioned here that Leibniz does recognize the existence of negative necessary truths, and he attempts to fit them into his "identity" theory of necessity by introducing in the *New Essays*, the expression "negative identities". Examples of negative identities are the following: "What is A cannot be not-A"; "An equilateral rectangle cannot be a non-rectangle"; "It is true that every man is an animal, therefore, it is false that there is a man who is not an animal." These, Leibniz says, are true by the principle of contradiction or identity. Thus it appears that Leibniz's "identity criterion" is not in fact so restrictive as to exclude negative necessary truths, and that these do not constitute a real difficulty for this doctrine (*Ibid*, 92).

According to Leibniz, necessary truths, being analytic in character, are true under all conditions or circumstances. They are true of "all possible worlds", depending on God's intellect and not on His will. God could not create a world in which the shortest distance between two points in a plane was not a straight line, but this is not a limitation to His freedom, but simply recognition of the

nature of His intellect. Now to say that all truths of reason are concerned with the sphere of possibility is to say that they are not existential propositions. Truths of reason state what would be true of any case, whereas true existential propositions depend on God's choice of one particular possible world. The exception to the rule that truths of reason are not existential propositions is the proposition that God is a possible being. For to state that God is possible is to state that God exists. Apart from this exception no truths of reason affirm existence of any subject. Leibniz writes: "That God exists, that all right angles are equal to one another, etc., are necessary truths, but that I exist and that there are bodies in nature that actually appear to have right angles are contingent truths" (Ariew and Garber 193).

It must be maintained that when Leibniz offers a definition of the term "necessary" it is "Absolute Necessity" which he has in mind. However, Leibniz incorporates within his system the traditional distinction between absolute and hypothetical necessity. He tends to treat the two types of necessity as mutually exclusive: Truths are absolutely necessary if they are based on the principle of contradiction; truths are hypothetically necessary if they are merely the necessary consequences of truths or assumptions not themselves absolutely necessary. Hypothetical necessity is based on the hypothesis of certain choices made by God. "Hypothetical necessity is that which the supposition or hypothesis of God's foresight and preordination plays upon future contingents." (Loemker 696). Contingent truths are, for Leibniz, hypothetically necessary, though not absolutely necessary. The distinction between absolute and hypothetical necessity plays an important role in Leibniz's metaphysico-theological writings (especially the *Discourse on Metaphysics*, *Correspondence with Arnauld*, and the *Theodicy*), in which he argues that laws specifically obtaining in this world are merely hypothetically necessary: they follow mediately (through more general laws) or immediately from a few very general truths concerning God's initial decisions about what sort of world to create. Thus, for example, in *Theodicy* Leibniz writes: "The laws of motion which actually occur in nature and which are verified by experiments are not in truths absolutely demonstrable, as a geometrical proposition would be" (Copleston 279). Truths describing God's initial decisions, however, are not themselves

absolutely necessary: it is not absolutely impossible that God should have made different decisions than he did. God is under no absolute necessity to choose one particular possible world.

> The whole universe might have been made differently, time, space, and matter being absolutely indifferent to motions and figures … Though all the facts of the universe are now certain in relation to God, … it does not follow that the truth which pronounces that one fact follows from another is necessary. (*Ibid.*)

> The present world is physically or hypothetically necessary, but not absolutely or metaphysically necessary. That is, given that it was once such and such, it follows that such and such things will arise in the future.  (Ariew and Garber 150)

Leibniz also distinguishes *moral* necessity from absolute necessity and hypothetical necessity. In §4 of *Fifth Paper to Clarke* he says:

> For we must distinguish between an absolute and a hypothetical necessity. We must also distinguish between a necessity which takes place because the opposite implies a contradiction (which necessity is called logical, metaphysical, or mathematical) and a necessity which is moral, whereby a wise being chooses the best, and every mind follows the strongest inclination. (Loemker 696)

It is thus morally necessary that God made the decisions that He did, since they are in fact the best decisions He could make. Moral necessity is based on the *Principle of Perfection*. In His free decrees, God acts in accord with the principle of maximizing perfection, i.e., producing the greatest variety on the simplest basis. So moral necessity guides, but does not compel God's free decrees. Hypothetical necessity is a consequence of that free decree (Loemker 604). These are matters connected with the free exercise of God's will. But absolute necessity is independent of His will. While the possibles subsist in God's understanding, according to Leibniz, what is possible is independent of God's decrees and is based solely on the principle of contradiction or of identity.

From the above distinction between absolute and hypothetical necessity we can grasp the nature of contingent truths. For, according to Leibniz, hypothetically necessary propositions are contingently true propositions. In §13 of *Discourse on Metaphysics* he writes:

> Connection or following is of two kinds. The one whose contrary implies a contradiction is absolutely necessary; this deduction occurs in the eternal truths, for example the truths of geometry. The other is necessary only *ex hypothesi* and, so to speak, accidentally, but it is contingent in itself since its contrary does not imply a contradiction. (Ariew and Garber 45)

According to Leibniz, truths of fact or contingent truths deal specifically with the *actual* world, and the matters of contingent existence. The existence of the individual substances is contingent. Leibniz takes a possible world to be a collection of complete concepts. There is a plurality (indeed an infinity) of possible worlds, since not all possible substances are compossibles. The existence of this world, and of all individual substances in it, is then contingent, because while God willed to create this world, He could have willed to create, and He could have created, any other. The grounds of contingent truths, according to Leibniz, hinge upon the will of God – they would be falsehood rather than truths had He chosen it so. He says that "God alone knows contingent truths *a priori* and sees their infallibility in a way other than through experience" (*Ibid*, 95). But we human beings are wholly reliant upon experience for our acquaintance with truths of fact, for we "know the truths of contingent things *a posteriori*, that is, through experience" (*Ibid*, 29).

Leibniz holds that all existential propositions, except the existence of God, are contingent truths. For him, necessary truths carry no commitment to the existence of anything, whereas contingent truths are related in someway to existence and time.

> It is necessary to philosophize differently about the notion of an individual substance than about the specific notion of a sphere. The notion of a sphere involves only eternal or necessary truths; but the notion of an individual substance involves, *sub*

*ratione possibilitatis*, what is of factor what is related to the existence of things and of time. (Frankfurt, 72-73)

It is to be noted here that, for Leibniz, existential propositions are not the only contingent propositions. All laws of nature are equally so, because they include an infinity of elements or of *conditions*. (*Ibid*, 28)

Truths of fact or contingent truths, according to Leibniz, rest on the *Principle of Sufficient Reason*. In §13 of *Discourse on Metaphysics* he writes:

All contingent propositions have sufficient reasons, or equivalently have a priori proofs which establish their certainty, and which shows that the connection of subject and predicate of these propositions has its foundation in their nature. But it is not the case that contingent propositions have demonstrations of necessity, since their sufficient reasons are based on the principle of contingence or existence, i.e., on what seems best among the equally possible alternatives … (Rescher 26-27)

The *Principle of Sufficient Reason* tells that nothing comes to pass without a reason. There must be a "sufficient reason for a thing to exist, for an event to happen, for any truth's taking place." (Ariew and Garber 346) When A and B are both finite things, the existence of B may be explicable in terms of the existence and activity of A. But the existence of A itself requires a sufficient reason. In the end we must say that the existence of the world, of the whole harmonious system of finite things, requires a sufficient reason why it exists. And this sufficient reason Leibniz finds in the free decree of God. "For truths of fact or of existence depend upon the decree of God" (Copleston 279).

Contingent truths, Leibniz insists, are not synthetic to any degree whatsoever, as is generally believed; they are just as *analytic* as necessary truths are. A natural question immediately arises: How is it possible for a proposition to be other than necessary if the predicate is contained in the subject? Since a contingent truth is a proposition that could have been false, the question can be more explicitly formulated as: How could "A is B" be false if the concept B is included in the concept A, and hence being B is part of what it

is to be A? (Mates 108) Leibniz himself acknowledges this problem as is evident from the following passages:

> … for if the notion of the predicate is in the notion of the subject at a given time, then how could the subject lack the predicate without contradiction and impossibility, and without changing that notion?

> At last a certain new and unexpected light shined from where I least expected it, namely, from mathematical considerations on the nature of infinity. (Ariew and Garber 95)

> And so I thought I had formulated some sort of mystery, which puzzled me daily; I could not understand how the predicate could be in the subject without the proposition being necessary. But my knowledge of geometry and analysis of infinities showed me the light so that I understood that those notions are also infinitely analyzable. (Frankfurt 26)

Leibniz thus finds the solution to the problem in the consideration of mathematical infinity. His solution consists in defining a necessary truth as one that can be reduced to an identity (or the opposite of which can be reduced to a contradiction) in a finite number of steps, whereas a contingent truth is to be a proposition in which, though the predicate concept is contained in the subject concept, the reduction goes on to infinity.

In support of this solution we may present the following passages from Leibniz's writings:

> In contingent truths, even though the predicate is in the subject, this can never be demonstrated, nor can a proposition ever be reduced to an equality or to an identity, but the resolution proceeds to infinity, God alone seeing, not the end of the resolution, of course, which does not exist, but the connection of the terms or the containment of the predicate in the subject, since he sees whatever is in the series. (Ariew and Garber 96)

> A true contingent proposition cannot be reduced to identical propositions, but is proved by showing that if the analysis is continued further and further, it constantly approaches identical

propositions, but never reaches them. Therefore, it is God alone, who grasps the entire infinite in his mind, who knows all contingent truths with certainty. (Mates 112)

And with this secret the distinction between necessary and contingent truths is revealed, something not easily understood unless one has some acquaintance with mathematics. For in necessary propositions, when the analysis is continued indefinitely, it arrives at an equation that is an identity; that is what it is to demonstrate a truth with geometrical rigor. In contingent propositions one continues the analysis to infinity through reasons for reasons, so that one never has a complete demonstration, though there is always, underneath, a reason for the truth, but the reason is understood completely only by God, who alone traverses the infinite series in one stroke of mind. (Ariew and Garber 29)

And finally,

The difference between *necessary* and *contingent truths* is indeed the same as that between commensurable and incommensurable numbers. For just as commensurable numbers can be resolved into common factors, so necessary truths can be demonstrated, that is, reduced to identical propositions. Moreover: in surds (irrational) ratios the resolution proceeds *in infinitum* and a common measure cannot be attained; yet a certain series is obtained, though it be endless. Analogously, contingent truths require an infinite analysis which can be performed only by God, so that he alone can know them *a priori* and with certainty … Hence, any truth which is not susceptible of analysis and cannot be demonstrated by reason, but receives its ultimate reason and certainty from the divine mind alone, is not a necessary truth. All the truths of this kind I call *truths of fact*. This is the root of contingency, and so far as I know, no one has hitherto explained it. (Rescher 26)

In the above passages, two interrelated features of contingent truths become apparent. In the first place, like the infinity in mathematics an infinite process of analysis is required in case of contingent truths to reveal the inclusion of the predicate in

the subject. And secondly, finite minds cannot determine the "virtual" presence of a predicate in a subject since this would require a completed infinite process. So, such propositions are contingent *for us*, though not for God. God alone can complete this infinite analysis "in one stroke of mind". For God, *all* true propositions are analytic.

From the above analysis it seems to follow that the difference between truths of reason and truths of fact, that is, between necessary and contingent propositions, is essentially relative to human knowledge. In this case all true propositions would be necessary in themselves and would be recognized as such by God, though the human mind, owing to its limited and finite character, is able to see the necessity only of those propositions which can be reduced by a finite process to what Leibniz calls "identicals". This conclusion is reflected in *Leibniz's Letter to Louis Bourguet, August 5, 1715*:

> There is involved here the difference between the analysis of necessities and the analysis of contingents. The analysis of necessities, which is that of essences, proceeds *from the posterior by nature to the prior by nature* and it is in this sense that numbers are analyzed into unities. But in contingents or existents, this analysis *from the posterior by nature to the prior by nature* proceeds to infinity without ever being reduced to primitive elements. (Loemker 664)

### III

Closely related to the issue of necessity and contingency is that of human freedom. Leibniz was familiar with the work of Spinoza and was at pains to avoid the determinism and absence of conventional human freedom therein. According to Spinoza, everything in the world is necessary and nothing is contingent, so that things could not be other than they are. Indeed, everything that is genuinely possible is actual and if something does not actually exist, it is because it could not. Everything follows from the divine nature, not by choice but by blind necessity. Furthermore, Spinoza argued, everything in the world is determined and what we take to be human freedom is just an illusion. We think that we are free

because we are ignorant of the causes outside us that determine us to do what we do.

Leibniz tries to support some kind of contingency. For Leibniz, an individual monadic substance contains everything that has happened, is happening, and will ever happen to it. Even if we accept that this whole sequence has a contingent start – God chose it freely, nevertheless, since the individual contains all these happenings, how can it be free to do other than what it does in fact do? Leibniz's solution was that while God builds actions into an individual, He can build them in as free actions. In §30 of *Discourse on Metaphysics* Leibniz writes: "God sees for all time that there will be a certain Judas whose notion or idea…contains this free and future action" (Ariew and Garber 47).

God gives us free will, the ability to choose one thing over another. When He actualizes a given individual, He includes the conditions that will lead that individual to choose one thing over another. But the actual choice is ours, and it is free, Leibniz argued. In this way, "God inclines our soul without necessitating it" (*Ibid*.). This is an echo of Leibniz's conception of contingency as *hypothetical* necessity. Within our own natures we are not necessitated to do that which we do, but by virtue of God's having created us we are hypothetically necessitated. Looked at in this way it is almost as though we would be completely free and not necessitated were it not for the external presence of God who makes all our actions metaphysically necessary while it is logically possible we could do otherwise. We are given the nature to be free but placed in chains of necessity.

## IV

We will now try to show the connection and influence of Leibniz's distinction between truths of reason and truths of fact, between necessary truths and contingent truths, among his contemporaries. Before Leibniz, we find the discussion of such kind of distinction in Hobbes' *Leviathan*. In Chapter IX entitled "Of the Several Subject of Knowledge" Hobbes remarks:

> There are of knowledge two kinds; whereof one is *knowledge of fact*; the other *knowledge of the consequence of one affirmation to another*. The former is nothing else than sense and memory, and is *absolute knowledge*; as when we see a fact doing, or remember it done; and this is the knowledge required in a witness. The latter is called *science*; and is c*onditional*; as when we know, that *if the figure shown be a circle, then any straight line through the centre shall divide it into two equal parts*. And this is the knowledge required in a philosopher; that is to say, of him that pretends to reasoning.

(http://ebooks.adelaide.edu.au/h/hobbes/thomas/h68l/)

The first kind is "experience of fact," the second "a knowledge of the truths of propositions, and how things are called," or "evidence of truth." However, Hobbes' distinction differs from Leibniz's distinction on these following points: (1) Whereas Hobbes distinguishes two different kinds of *knowing*, Leibniz differentiates between two kinds of *truths*. After all, our knowledge is expressed in propositions, and it may be that what we understand by "truth" of these propositions differs in the two cases. (2) Whereas Leibniz's distinction is logical, that of Hobbes' is epistemological. (3) For Leibniz, the truths of reason precede logically and epistemologically to those of fact, and the interpretation of truths of fact depends on the interpretation of truths of reason. In Hobbes, however, this is reversed; he interpreted the truths of reason on the basis of the truths of fact. (4) Hobbes regards statements of fact as absolute, whereas for Leibniz they may be no more than hypothetical and probable; and that truths of reason are not merely hypothetical but are necessary truths and in a certain sense absolute. (5) Hobbes overlooked the metaphysical implications of his distinction between two kinds of knowledge. On the other hand, Leibniz's distinction has implications on his metaphysical theory. Both kinds of truth appear in a new light if seen in God's perspective. The truths of reason or eternal truths are independent of God's will, whereas the truths of fact depend on it (together with the facts themselves, like the existence of individual substances or the special conditions of space and time).

However, it is to be mentioned here that Leibniz did not seem to invent the distinction between these two kinds of truth; "it is highly probable that he accepted it from Hobbes. He (Leibniz) was in his youth deeply impressed by Hobbes whom he called *profundissimus principiorum in omnibus rebus scrutator*; he wrote him letters; he knew the *Leviathan* and admired its clear method but rejected its political doctrine. It is therefore very improbable that Hobbes's fundamental distinction should have escaped his attention." (Heinemann 469)

Leibniz' distinction between these two kinds of truths dominates the system of the German Enlightenment philosopher Christian Wolff. The difference between *veritates necessarice* (necessary truths), and *veritates contingentiae* (contingent truths) forms the basis for his distinction between philosophical sciences (which reveal the possibility and necessity of their objects) and historical sciences, which refer to facts. But Wolff disregards Leibniz' reference to God. Heinemann remarks that Wolff's distinction between necessary truth and contingent truths

> is relative to the human understanding and refers therefore rather to two different kinds of knowing than to two species of truth. In this respect he is much nearer to Hobbes than to Leibniz. Far from trying to reduce empirical truth to analytic truth or from trying to establish "factual truth" from a priori premises he stresses their difference. He admits that contingent truths are based on the principle of sufficient reason, but that for that reason they are not necessary. (*Ibid*.)

David Hume accepts Leibniz's distinction as the basis of his theory of knowledge. In the *Treatise of Human Nature* he says: "The understanding exerts itself after two different ways, as it judges from demonstration or probability; as it regards the abstract relations of our ideas, or those relations of objects, of which experience only gives us information" (413). The first refers to "the world of ideas," the second to reality. And again: "The operations of human understanding divide themselves into two kinds, the comparing of ideas and the inferring of matter of fact" (463). The well-known passage in the *Enquiry Concerning Human Understanding* (§IV, Pt. I) repeats the same in the following words:

"All the objects of human reason or enquiry may naturally be divided into two kinds, to wit, *Relations of Ideas*, and *Matters of Fact*." The first kind of knowledge is that of algebra, arithmetic, and geometry (the latter being regarded in the Treatise as based on generalizations from experience). Its propositions are necessary, i.e., their contradictory propositions are impossible; they are based on the law on contradiction. Matter-of-fact propositions, however, are merely contingent. "The contrary of every matter of fact is still possible" and does not imply any contradiction. The logical characteristic of the two kinds of propositions is Leibnizian. For what Hume has in mind is that "the contrary of matter-of-fact propositions is still possible" and that these contradictory propositions are not demonstrable.

Hume, however, did not accept Leibniz's view that contingent truths are analytic; for him, they are synthetic, and cannot by any means be reduced to analytic propositions. Besides, as Heinemann remarks, the two terms "truths of reason" (*vérités de raison*) and "knowledge of the relations of ideas"

> are by no means identical. They differ in connotation as well as in denotation. Hume's notion derives its connotation from the term "idea"; it has therefore an empiricist basis, whereas Leibniz' term has a rationalist basis (the truths of reason being based on the law of contradiction). Since according to Hume all ideas are derived from impressions, the relations of ideas must be based on relations of impressions, and their analysis leads therefore back to impressions. This is very different from Leibniz. It connects rational knowledge somehow with empirical knowledge, though Hume does not discuss or analyze this connection. (Heinemann 472)

Leibniz's distinction between the two kinds of truths remains fundamental in Kant's philosophy, dominating his thought in its metaphysical and epistemological aspect. In his critical period Kant transformed the two kinds of truth into two kinds of judgment, namely *a priori* and *a posteriori* judgments. By *a priori* Kant means "transcendental *a priori*," i.e., as denoting elements of our thought which are independent of experience but have meaning merely as the presuppositions of, or the forms of, experience. In doing so Kant

rejected the absoluteness of the distinction; the two kinds of judgment are now considered as interdependent. An *a priori* principle becomes a rule for ordering the sensations and for connecting them in the unity of objective knowledge. The understanding itself is the faculty of rules which, with the help of categories and principles, establishes the order of nature.

Thus Kant reinterprets truths of reason (*vérités de raison*). He does not deny that some of them are analytic and based on the law of contradiction. But he claims the distinction between analytic and synthetic propositions as fundamental, and he believes himself to have discovered that mathematical propositions are synthetic, and consequently that there are synthetic *a priori* propositions. Contra Leibniz, Kant emphatically states that truths of fact (*vérités de fait*) are synthetic. "Empirical judgments, he says, are either *Wahrnehmungsurteile* (they describe what I perceive, but are of merely subjective validity) or *Erfahrungsurteile* (they have objective validity). Those of them which have objective validity owe their objectivity to the categories of the understanding which order the manifold of the sensations according to rules" (*Ibid*, 476).

However, it is to be maintained that while Kant's distinction between two kinds of truth (*a priori/a posteriori*, analytic/synthetic) is epistemological, Leibniz's distinction is purely logical and metaphysical. We have also seen that Hobbes, Wolff and Hume make the distinction between these two kinds of truth as the basis of their theories of knowledge; on the contrary, Leibniz's distinction has implications on his metaphysical theory. Both kinds of truth appear in a new light if seen in God's perspective. The truths of reason are independent of God's will, whereas the truths of fact depend on it.

In conclusion, it may be observed that Leibniz was the first to distinguish "truths of reason" from "truths of fact" and to contrast the necessary propositions of logic and mathematics, which hold in all "possible worlds," with the contingent propositions of science, which hold only in some possible worlds (including the actual world). He saw clearly that, as the first kind of proposition is governed by the principle of contradiction (a proposition and its negation cannot both be true), the second is governed by the

principle of sufficient reason (nothing exists or is the case without a sufficient reason). This principle was the basis of Leibniz's claim that the actual world is the "best of all possible worlds" that God could have created: his choice of this world over the others required a sufficient reason, which, for Leibniz, was the fact that this world was the best, despite the existence of evident evils. Any other possible world would have had evils of its own sort of even greater magnitude.

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